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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,764	12/12/2001	Haruhiko Yamamoto	01-807	8667

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EXAMINER	
TRINH, HOA B	
ART UNIT	PAPER NUMBER
2814	

DATE MAILED: 06/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/020,764	YAMAMOTO ET AL.	
	Examiner	Art Unit	
	Vikki H Trinh	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2004* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 7-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4, 7-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. In view of the appeal brief filed on Mar 02, 2004, PROSECUTION IS HEREBY REOPENED. The response options set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-2, 4, 7, 11-17, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woolhouse et al. (4,237,601) in view of Patel et al. (6,642,477).

Woolhouse et al. (4,237,601) discloses a method of forming a hole/groove(feature) in a substrate, where residue within the feature can be remove, the method comprising:

As to claims 1, 5-6, forming an upper sidewall portion of the feature 22 , the upper sidewall portion forming a void 22 in the substrate 10, where the upper sidewall portion has an upper sidewall angle, and forming a lower sidewall portion of the feature, the lower sidewall portion forming a void 22 in the substrate 10, where the lower sidewall portion has a lower sidewall angle, where the upper sidewall angle of the upper sidewall portion is shallower than the lower sidewall angle of the lower sidewall portion. The upper sidewall portion and the lower sidewall portion are formed by laser facets of the substrate. See column 1, lines 25-30, and see figure 2b.

However, Woolhouse et al. does not explicitly state that the upper and lower sidewall portions are formed by laser ablation.

Patel et al. '477 teaches the making of a through-hole in the substrate using laser ablation (col. 1, line 16).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the technique for shaping the sidewall of Woolhouse et al. with laser ablation, as taught by Patel et al., so as to provide a desired shape of the hole in the substrate. (col. 3, lines 10-19)

As to claim 2, Woolhouse et al. teaches that the upper sidewall angle of the upper sidewall portion is 54 degree which falls within the claimed range. See column 4, lines 55-60.

As to claim 4, Woolhouse et al. teaches that the lower sidewall portion is inherently formed before the upper sidewall portion is formed. See figure 2b.

As to claim 7, Woolhouse et al. teaches that the feature comprises a blind bore 22 formed in the substrate. See figure 1b.

As to claim 11, Woolhouse et al. teaches that the substrate 10 comprises silicon. See column 3, line 24.

As to claim 12, Woolhouse et al. teaches that a feature 22 formed according to the method of claim 1. See figure 1b.

As to claim 13, Woolhouse et al. teaches that an integrated circuit substrate 10 having features 22 formed according to the method of claim 1. See figure 1b.

As to claim 14, a method for forming indicia elements on a substrate, where the indicia elements have a shape that aids in removal of foreign material from the indicia elements on the

substrate 10, the method comprising the steps of forming an upper sidewall portion of the indicia elements 22, the upper sidewall portion forming a void 22 in the substrate 10, where the upper sidewall portion has an upper sidewall angle, forming a lower sidewall portion of the indicia elements, the lower sidewall is portion forming a void in the substrate, where the lower sidewall portion has a lower sidewall angle, where the upper sidewall angle of the upper sidewall portion is shallower than the lower sidewall angle of the lower sidewall portion, and forming the indicia elements in a pattern to form identifying indicia on the substrate. The upper sidewall portion and the lower sidewall portion are formed by laser ablation of the substrate. See column 1, lines 25-30, and see figures 1b, 2b.

Patel et al. '477 teaches the making of a through-hole in the substrate using laser ablation (col. 1, line 16).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the technique for shaping the sidewall of Woolhouse et al. with laser ablation, as taught by Patel et al., so as to provide a desired shape of the hole in the substrate. (col. 3, lines 10-19)

As to claim 15, Woolhouse et al. teaches that all of the upper sidewall portions of all of the indicia elements are formed prior to forming any of the lower sidewall portions of any of the indicia elements. See figure 1b.

As to claim 16, Woolhouse et al. teaches that all of the lower sidewall portions of all of the indicia elements 22 are formed prior to forming any of the upper sidewall portions of any of the indicia elements. See figure 1b.

As to claim 17, Woolhouse et al. teaches that a preceding one of the indicia elements is completely formed prior to forming a seceding one of the indicia elements. See figure 1b.

As to claim 19, Woolhouse et al. teaches that an integrated circuit substrate 10 having identifying indicia formed according to the method of claim 14. See figure 2b and column 1, lines 7-45.

1. Claims 3, 8-10, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woolhouse et al. (4,237,601) in view of Patel et al. (6,642,477).

The combined teaching of Woolhouse et al. (4,237,601) and Patel et al. discloses the invention substantially as claimed. However, Woolhouse et al. (4,237,601) and Patel et al. do not explicitly teach that the lower sidewall angle is about 60-90 degrees and the depth of the sidewalls are about 4-8 microns. Nevertheless, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the angle and depth according to the sidewalls of Woolhouse et al. (4,237,601) with the specific ranges, as claimed, since it is prima facie obvious to an artisan's experimentation and optimization because applicants have not yet established any criticality for the specific ranges.

The courts have concluded that there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. In re McLaughlin, 170 USPQ 209 (CCPA 1971). Also, references are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures. In re Bozek, 163 USPQ 545 (CCPA 1969).

Conclusion

2. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Vikki Trinh whose telephone number is (703) 308-8238. The Examiner can normally be reached Mon-Tuesday, Thurs-Friday, 7:30 AM - 6:00 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Wael Fahmy, can be reached at (703) 308-4918. General inquiries relating to the status of this application should be directed to the Group receptionist at (703) 308-0858. The fax number is (703) 308-2708.

Vikki Trinh,
Patent Examiner
AU 2814